

# Practical Electrical Engineering By Sergey N Makarov

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## **Strong Light-matter Coupling: From Atoms To Solid-state Systems**

- Leong-chuan Kwek 2013-12-23

The physics of strong light-matter coupling has been addressed in different scientific communities over the last three decades. Since the early eighties, atoms coupled to optical and microwave cavities have led to pioneering demonstrations of cavity quantum electrodynamics, Gedanken experiments, and building blocks for quantum information processing, for which the Nobel Prize in Physics was awarded in 2012. In the framework of semiconducting devices, strong coupling has allowed investigations into the physics of Bose gases in solid-state environments, and the latter holds promise for exploiting light-matter interaction at the single-photon level in scalable architectures. More recently, impressive developments in the so-called superconducting circuit QED have opened another fundamental playground to revisit cavity quantum electrodynamics for practical and fundamental purposes. This book aims at developing the necessary interface between these communities, by providing future researchers with a robust conceptual, theoretical and experimental basis on strong light-matter coupling, both in the classical and in the quantum regimes. In addition, the emphasis is on new forefront research topics currently developed around the physics of strong light-matter interaction in the atomic and solid-state scenarios.

## **Rockets and People Volume I (NASA History Series. NASA**

**Sp-2005-4110)** - Boris Chertok 2005-01-01

Much has been written in the West on the history of the Soviet space program, but few Westerners have read direct first-hand accounts of the men and women who were behind the many Russian accomplishments in exploring space. The memoir of academician Boris Chertok, translated from the original Russian, fills that gap. Chertok began his career as an electrician in 1930 at an aviation factory near Moscow. Thirty years later, he was deputy to the founding figure of the Soviet space program, the mysterious "Chief Designer" Sergey Korolev. Chertok's 60-year-long career and the many successes and failures of the Soviet space program constitute the core of his memoirs, *Rockets and People*. In these writings, spread over four volumes (volumes two through four are forthcoming), academician Chertok not only describes and remembers, but also elicits and extracts profound insights from an epic story about a society's quest to explore the cosmos. This book was edited by Asif Siddiqi, a historian of Russian space exploration, and General Tom Stafford contributed a foreword touching upon his significant work with the Russians on the Apollo-Soyuz Test Project. Overall, this book is an engaging read while also contributing much new material to the literature about the Soviet space program.

**Exhaustion** - Anna K. Schaffner 2016-06-21

Today our fatigue feels chronic; our anxieties, amplified. Proliferating technologies command our attention. Many people complain of burnout, and economic instability and the threat of ecological catastrophe fill us with dread. We look to the past, imagining life to have once been simpler and slower, but extreme mental and physical stress is not a modern syndrome. Beginning in classical antiquity, this book demonstrates how exhaustion has always been with us and helps us evaluate more critically the narratives we tell ourselves about the phenomenon. Medical, cultural, literary, and biographical sources have cast exhaustion as a biochemical imbalance, a somatic ailment, a viral disease, and a spiritual failing. It has been linked to loss, the alignment of the planets, a perverse desire for death, and social and economic disruption. Pathologized, demonized, sexualized, and even weaponized, exhaustion unites the mind with the body and society in such a way that we attach larger questions of agency, willpower, and well-being to its symptoms. Mapping these political, ideological, and creative currents across centuries of human development, Exhaustion finds in our struggle to overcome weariness a more significant effort to master ourselves.

Electrical Principles and Technology for Engineering - John Bird  
2013-10-22

The aim of this book is to introduce students to the basic electrical and electronic principles needed by technicians in fields such as electrical engineering, electronics and telecommunications. The emphasis is on the practical aspects of the subject, and the author has followed his usual successful formula, incorporating many worked examples and problems (answers supplied) into the learning process. Electrical Principles and Technology for Engineering is John Bird's core text for Further Education courses at BTEC levels N11 and N111 and Advanced GNVQ. It is also designed to provide a comprehensive introduction for students on a variety of City & Guilds courses, and any students or technicians requiring a sound grounding in Electrical Principles and Electrical Power Technology.

Practical Electrical Engineering - Sergey N. Makarov 2019-03-11

This new edition of a proven textbook provides comprehensive, in-depth coverage of the fundamental concepts of electrical and computer engineering. It is written from an engineering perspective, with special emphasis on circuit functionality and applications. Reliance on higher-level mathematics and physics, or theoretical proofs has been intentionally limited in order to prioritize the practical aspects of electrical engineering. This text is therefore suitable for a number of introductory circuit courses for other majors such as robotics, mechanical, biomedical, aerospace, civil, architecture, petroleum, and industrial engineering. The authors' primary goal is to teach the aspiring engineering student all fundamental tools needed to understand, analyze and design a wide range of practical circuits and systems. Their secondary goal is to provide a comprehensive reference, for both major and non-major students as well as practicing engineers.

Practical Electrical Engineering - Sergey N. Makarov 2019-02-28

This new edition of a proven textbook provides comprehensive, in-depth coverage of the fundamental concepts of electrical and computer engineering. It is written from an engineering perspective, with special emphasis on circuit functionality and applications. Reliance on higher-level mathematics and physics, or theoretical proofs has been intentionally limited in order to prioritize the practical aspects of electrical engineering. This text is therefore suitable for a number of introductory circuit courses for other majors such as robotics, mechanical, biomedical, aerospace, civil, architecture, petroleum, and industrial engineering. The authors' primary goal is to teach the aspiring engineering student all fundamental tools needed to understand, analyze and design a wide range of practical circuits and systems. Their secondary goal is to provide a comprehensive reference, for both major and non-major students as well as practicing engineers.

*Antenna and EM Modeling with MATLAB Antenna Toolbox* Sergey N. Makarov 2021-05-11

ANTENNA AND EM MODELING WITH MATLAB ANTENNA TOOLBOX™  
An essential text to MATLAB Antenna Toolbox™ as accessible and easy-to-use full-wave antenna modeling tool Antenna and EM Modeling with

MATLAB Antenna Toolbox™ is a textbook on antennas intended for a one semester course. The core philosophy is to introduce the key antenna concepts and follow them up with full-wave modeling and optimization in the MATLAB Antenna Toolbox™. Such an approach will enable immediate testing of theoretical concepts by experimenting in software. It also provides the direct path to research work. The fundamental families of antennas — dipoles, loops, patches, and traveling wave antennas — are discussed in detail, together with the respective antenna arrays. Using antenna parameters such as impedance, reflection coefficient, efficiency, directivity, and gain, the reader is introduced to the different ways of understanding the performance of an antenna. Written for senior undergraduates, graduates as well as RF/Antenna engineers, Antenna and EM Modeling with Antenna Toolbox™ is a resource that: Provides 14 video assisted laboratories on using Antenna Toolbox™ Includes approximately 50 real-world examples in antenna and array design Offers approximately 200 homework problems Provides multiple ready-to-use standalone MATLAB® scripts

*Optical Antennas* Mario Agio 2013-01-03

This consistent and systematic review of recent advances in optical antenna theory and practice brings together leading experts in the fields of electrical engineering, nano-optics and nano-photonics, physical chemistry and nanofabrication. Fundamental concepts and functionalities relevant to optical antennas are explained, together with key principles for optical antenna modelling, design and characterisation. Recognising the tremendous potential of this technology, practical applications are also outlined. Presenting a clear translation of the concepts of radio antenna design, near-field optics and field-enhanced spectroscopy into optical antennas, this interdisciplinary book is an indispensable resource for researchers and graduate students in engineering, optics and photonics, physics and chemistry.

Introduction to Smart Antennas - Constantine A. Balanis 2022-06-01

As the growing demand for mobile communications is constantly increasing, the need for better coverage, improved capacity, and higher transmission quality rises. Thus, a more efficient use of the radio

spectrum is required. Smart antenna systems are capable of efficiently utilizing the radio spectrum and is a promise for an effective solution to the present wireless systems' problems while achieving reliable and robust high-speed high-data-rate transmission. The purpose of this book is to provide the reader a broad view of the system aspects of smart antennas. In fact, smart antenna systems comprise several critical areas such as individual antenna array design, signal processing algorithms, space-time processing, wireless channel modeling and coding, and network performance. In this book we include an overview of smart antenna concepts, introduce some of the areas that impact smart antennas, and examine the influence of interaction and integration of these areas to Mobile Ad-Hoc Networks. In addition, the general principles and major benefits of using space-time processing are introduced, especially employing multiple-input multiple-output (MIMO) techniques.

*Standard Handbook for Electrical Engineers, Seventeenth Edition*  
Surya Santoso 2017-11-24

Up-to-date coverage of every facet of electric power in a single volume  
This fully revised, industry-standard resource offers practical details on every aspect of electric power engineering. The book contains in-depth discussions from more than 100 internationally recognized experts. Generation, transmission, distribution, operation, system protection, and switchgear are thoroughly explained. Standard Handbook for Electrical Engineers, Seventeenth Edition, features brand-new sections on measurement and instrumentation, interconnected power grids, smart grids and microgrids, wind power, solar and photovoltaic power generation, electric machines and transformers, power system analysis, operations, stability and protection, and the electricity market. Coverage includes:

- Units, symbols, constants, definitions, and conversion factors
- Measurement and instrumentation
- Properties of materials
- Interconnected power grids
- AC and DC power transmission
- Power distribution
- Smart grids and microgrids
- Wind power generation
- Solar power generation and energy storage
- Substations and switch gear
- Power transformers, generators, motors, and drives
- Power electronics

- Power system analysis, operations, stability, and protection
- Electricity markets
- Power quality and reliability
- Lightning and overvoltage protection
- Computer applications in the electric power industry
- Standards in electrotechnology, telecommunications, and IT

**Our Pristine Mind** - Orgyen Chowang 2016-06-07

This “gem of a book” reveals how we can go beyond mindfulness to connect with the ultimate happiness within us and transform our lives (Rick Hanson, Buddha’s Brain) The true nature of our mind is brilliant, clear, and joyful. But we don’t experience this reality amid the swirl of stresses, thoughts, and emotions of day-to-day life. Our Pristine Mind is a practical guide to uncovering our naturally comfortable state of mind and reconnecting with the unconditional happiness that is already within us. Using straightforward, accessible language, Orgyen Chowang Rinpoche leads us through the path of Pristine Mind meditation, a practice from the profound teachings known as Dzogchen. This book presents the entire journey of meditation, from the very beginning all the way to the complete happiness of enlightenment. It is a realistic, natural process that can be practiced and experienced by anyone.

*Perspectives on the Use of New Information and Communication Technology (ICT) in the Modern Economy* - Elena G. Popkova 2018-06-04

This book includes the best works presented at the scientific and practical conference that took place on February 1, 2018 in Pyatigorsk, Russia on the topic “Perspectives on the use of New Information and Communication Technology (ICT) in the Modern Economy”. The conference was organized by the Institute of Scientific Communications (Volgograd, Russia), the Center for Marketing Initiatives (Stavropol, Russia), and Pyatigorsk State University (Pyatigorsk, Russia). The book present the results of research on the complex new information and communication technologies in the modern economy and law as well as research that explore limits of and opportunities for their usage. The target audience of this book includes undergraduates and postgraduates, university lecturers, experts, and researchers studying various issues concerning the use of new information and communication technologies in modern economies. The book includes research on the following

current topics in modern economic science: new challenges and opportunities for establishing information economies under the influence of scientific and technical advances, digital economy as a new vector of development of the modern global economy, economic and legal aspects of using new information and communication technologies in developed and developing countries, priorities of using the new information and communication technologies in modern economies, platforms of communication integration in tourism using new information and communication technologies, and economic and legal managerial aspects and peculiarities of scientific research on the information society.

*The Future of the Global Financial System: Downfall or Harmony* - Elena G. Popkova 2018-11-03

This book gathers the best papers presented at the conference “The Future of the Global Financial System: Downfall or Harmony”, which took place in Limassol, Cyprus on April 13-14, 2018. Organized by the Institute of Scientific Communications (Volgograd, Russia), the conference chiefly focused on reassessing the role and meaning of the global financial system in the modern global economy in light of the crisis that began in 2008 and can still be observed in many countries, and on developing conceptual and applied recommendations on spurring the development of the global financial system. All works underwent peer-review and conform to strict criteria, including a high level of originality (more than 90%), elements of scientific novelty, contribution to the development of economic science, and broad possibilities for practical application. The target audience of this scientific work includes postgraduates, lecturers at higher educational establishments, and researchers studying the modern global financial system. Based on the authors’ conclusions and results, readers will be equipped to pursue their own scientific research. The topics addressed include (but are not limited to) the following issues, which are interesting for modern economic science and practice: financial globalization, the role of finances in the global economy, perspectives of transition in the financial system from part of the infrastructure to a new vector of development in the global economy in the 21st century, reasons for the crisis of the

modern financial system and ways of overcoming it, problems and perspectives regarding the harmonization of the global financial system, and scenarios of development for the global financial system. The content is divided into the following parts: development of financial systems at the micro-, meso- and macro-levels, financial infrastructure of the modern economy, legal issues of development of the modern financial system, and management of the global financial system.

**Switchmode RF Power Amplifiers** - Andrei Grebennikov 2011-04-01

A majority of people now have a digital mobile device whether it be a cell phone, laptop, or blackberry. Now that we have the mobility we want it to be more versatile and dependable; RF power amplifiers accomplish just that. These amplifiers take a small input and make it stronger and larger creating a wider area of use with a more robust signal. Switching mode RF amplifiers have been theoretically possible for decades, but were largely impractical because they distort analog signals until they are unrecognizable. However, distortion is not an issue with digital signals—like those used by WLANs and digital cell phones—and switching mode RF amplifiers have become a hot area of RF/wireless design. This book explores both the theory behind switching mode RF amplifiers and design techniques for them. \*Provides essential design and implementation techniques for use in cma2000, WiMAX, and other digital mobile standards \*Both authors have written several articles on the topic and are well known in the industry \*Includes specific design equations to greatly simplify the design of switchmode amplifiers

**Antenna and EM Modeling with MATLAB Antenna Toolbox** - Sergey N. Makarov 2021-04-30

ANTENNA AND EM MODELING WITH MATLAB ANTENNA TOOLBOX™ An essential text to MATLAB Antenna Toolbox™ as accessible and easy-to-use full-wave antenna modeling tool Antenna and EM Modeling with MATLAB Antenna Toolbox™ is a textbook on antennas intended for a one semester course. The core philosophy is to introduce the key antenna concepts and follow them up with full-wave modeling and optimization in the MATLAB Antenna Toolbox™. Such an approach will enable immediate testing of theoretical concepts by

experimenting in software. It also provides the direct path to research work. The fundamental families of antennas — dipoles, loops, patches, and traveling wave antennas — are discussed in detail, together with the respective antenna arrays. Using antenna parameters such as impedance, reflection coefficient, efficiency, directivity, and gain, the reader is introduced to the different ways of understanding the performance of an antenna. Written for senior undergraduates, graduates as well as RF/Antenna engineers, Antenna and EM Modeling with Antenna Toolbox™ is a resource that: Provides 14 video assisted laboratories on using Antenna Toolbox™ Includes approximately 50 real-world examples in antenna and array design Offers approximately 200 homework problems Provides multiple ready-to-use standalone MATLAB® scripts

**Brain and Human Body Modeling 2020** - Sergey N. Makarov 2020  
The 41st Annual International Conference of the IEEE EMBS, took place between July 23 and 27, 2019, in Berlin, Germany. The focus was on "Biomedical engineering ranging from wellness to intensive care." This conference provided an opportunity for researchers from academia and industry to discuss a variety of topics relevant to EMBS and hosted the 4th Annual Invited Session on Computational Human Models. At this session, a bevy of research related to the development of human phantoms was presented, together with a substantial variety of practical applications explored through simulation.

Proceedings of the Scientific-Practical Conference "Research and Development - 2016" - K V Anisimov 2020-10-08

This open access book relates to the III Annual Conference hosted by the Russian Federal Ministry of Education and Science in December 2016. This event has summarized, analyzed and discussed the interim results, academic outputs and scientific achievements of the Russian Federal Targeted Programme for Research and Development in priority areas of development of the Russian Scientific and Technological Complex for 2014-2020. It contains 75 selected papers from 6 areas considered priority by the Federal programme: computer science, ecology & environment sciences; energy and energy efficiency; life sciences;

nanoscience & nanotechnology; and transport & communications. The chapters report the results of the 3-years research projects supported by the Programme and finalized in 2016. This work was published by Saint Philip Street Press pursuant to a Creative Commons license permitting commercial use. All rights not granted by the work's license are retained by the author or authors.

*DSM5 Handbook of Differential Diagnosis* Michael B. First, M.D.  
2013-11-19

The DSM-5® Handbook of Differential Diagnosis helps clinicians and students improve their skill in formulating a comprehensive differential diagnosis by including the DSM-5® classification and providing a variety of approaches, including a six-step diagnostic framework, 29 bottom-up "decision trees," and 66 differential diagnosis tables.

Practical Electrical Engineering - Sergey N. Makarov 2016-06-27

This textbook provides comprehensive, in-depth coverage of the fundamental concepts of electrical engineering. It is written from an engineering perspective, with special emphasis on circuit functionality and applications. Reliance on higher-level mathematics and physics, or theoretical proofs has been intentionally limited in order to prioritize the practical aspects of electrical engineering. This text is therefore suitable for a number of introductory circuit courses for other majors such as mechanical, biomedical, aerospace, civil, architecture, petroleum, and industrial engineering. The authors' primary goal is to teach the aspiring engineering student all fundamental tools needed to understand, analyze and design a wide range of practical circuits and systems. Their secondary goal is to provide a comprehensive reference, for both major and non-major students as well as practicing engineers.

**A Student's Guide to the Schrödinger Equation** - Daniel A. Fleisch  
2020-02-20

A clear guide to the key concepts and mathematical techniques underlying the Schrödinger equation, including homework problems and fully worked solutions.

*Electrically Small, Superdirective, and Superconducting Antennas*  
Hansen 2006-06-19

A seminal reference to electrically small antennas for today's wireless and Wi-Fi world This book is dedicated to the challenges posed by electrically small antennas and their solutions. Electrically small antennas have characteristics that limit performance: low radiation resistance, high reactance, low efficiency, narrow bandwidth, and increased loss in the matching network. Most of these limitations are shared by two other classes of antennas: superdirective and superconducting antennas. All three classes of antennas are thoroughly treated in three interrelated parts: \* Part One, Electrically Small Antennas, begins with a discussion of the fundamental limitations of bandwidth and matching, then provides detailed design information on loaded whips and dipoles, ferrite loops, patches with unusual substrates, and dielectric resonator antennas. In addition to exploring designs that work, the author sets forth antenna designs that are based on good physics yet are poor performers, as well as designs with both poor underlying physics and poor performance. \* Part Two, Superdirective Antennas, sets forth basic capabilities and limitations of superdirective antennas, both apertures and arrays, and investigates bandwidth, efficiency, and tolerances. The author explores the magnification of intrinsic matching circuit loss due to a large mismatch and evaluates the recent and promising non-Foster matching circuits. \* Part Three, Superconducting Antennas, reviews superconductivity concepts and new principles for dipole, loop, and patch antennas. The author concludes with a discussion of superconducting delay lines for wideband phased array steering. Throughout the book, the author provides readers with a historical perspective, setting forth what has been investigated, what works, and what does not. Each part has its own author index and a list of references to help readers continue their explorations of particular topics. With the explosive demand for wireless and Wi-Fi, this seminal reference is essential reading for all antenna professionals and is recommended as a graduate-level course book.

*Advanced Engineering Electromagnetics* Constantine A. Balanis  
2012-01-24

Balanis' second edition of Advanced Engineering Electromagnetics - a

global best-seller for over 20 years - covers the advanced knowledge engineers involved in electromagnetic need to know, particularly as the topic relates to the fast-moving, continually evolving, and rapidly expanding field of wireless communications. The immense interest in wireless communications and the expected increase in wireless communications systems projects (antenna, microwave and wireless communication) points to an increase in the number of engineers needed to specialize in this field. In addition, the Instructor Book Companion Site contains a rich collection of multimedia resources for use with this text. Resources include: Ready-made lecture notes in Power Point format for all the chapters. Forty-nine MATLAB® programs to compute, plot and animate some of the wave phenomena. Nearly 600 end-of-chapter problems, that's an average of 40 problems per chapter (200 new problems; 50% more than in the first edition) A thoroughly updated Solutions Manual 2500 slides for Instructors are included.

**The Russian Navy** - Defense Dept., Navy, Office of Naval Intelligence 2016-11-04

This publication is intended to provide the reader with a basic introduction to the Russian Navy and an appreciation of current developments that will shape Russia's navy and its operations in the 21st century. In this book, you will also find historical and contemporary information about the Russian Military Planning operations; its strategic nuclear deterrent forces; the organization, including Russian Naval officer career paths, naval ships and aircraft fleets; and more. Related products: Russia & the Soviet Union resources collection can be found here:

<https://bookstore.gpo.gov/catalog/international-foreign-affairs/russia-soviet-union> Developing Emerging Leaders: The Bush School and the Legacy of the 41st President is available here:

<https://bookstore.gpo.gov/products/sku/008-000-01195-8> Other products produced by the U.S. Navy can be found here:

<https://bookstore.gpo.gov/agency/890>

**Man-made Catastrophes and Risk Information Concealment** Dmitry Chernov 2015-10-27

This book discusses the risks of information concealment in the context of major natural or industrial disasters - offering detailed descriptions and analyses of some 25 historical cases (Three Mile Island nuclear accident, Bhopal disaster, Challenger Space Shuttle explosion, Chernobyl nuclear disaster, Deepwater Horizon oil spill, Fukushima-Daiichi nuclear disaster, Enron's bankruptcy, Subprime mortgage crisis, Worldwide Spanish flu and SARS outbreaks, etc.) and applying these insights to selected on-going cases where such information concealment is suspected. Some successful examples of preventive anti-concealment practice are also presented. In the book, the term 'concealment' is used to represent the two distinct behaviors uncovered in the investigations: (i) facts and information about an organization and its functioning being hidden from those that need them - here the concealment can be due to various factors, such as complexity and miscommunication, to name but two - and (ii) the conscious and deliberate action of keeping important information secret or misrepresenting it. This second meaning makes up a surprisingly important part of the evidence presented. Accordingly, emphasis has been put on this second aspect and the approach is more pragmatic than academic, remaining focused on evidence-based practical and useful factors. It raises awareness and provides valuable lessons for decision-makers, risk specialists and responsible citizens alike. This work is also intended as a fact-based reference work for future academic and scholarly investigations on the roots of the problem, in particular regarding any psychological or sociological modeling of human fallibility.

**The Impact of the 4th Industrial Revolution on Engineering Education** - Michael E. Auer 2020-03-18

This book gathers papers presented at the 22nd International Conference on Interactive Collaborative Learning (ICL2019), which was held in Bangkok, Thailand, from 25 to 27 September 2019. Covering various fields of interactive and collaborative learning, new learning models and applications, research in engineering pedagogy and project-based learning, the contributions focus on innovative ways in which higher education can respond to the real-world challenges related to the current transformation in the development of education. Since it was

established, in 1998, the ICL conference has been devoted to new approaches in learning with a focus on collaborative learning. Today, it is a forum for sharing trends and research findings as well as presenting practical experiences in learning and engineering pedagogy. The book appeals to policymakers, academics, educators, researchers in pedagogy and learning theory, school teachers, and other professionals in the learning industry, and further and continuing education.

**Quantum Photonics: Pioneering Advances and Emerging**

**Applications** - Robert W. Boyd 2019-02-27

This book brings together reviews by internationally renowned experts on quantum optics and photonics. It describes novel experiments at the limit of single photons, and presents advances in this emerging research area. It also includes reprints and historical descriptions of some of the first pioneering experiments at a single-photon level and nonlinear optics, performed before the inception of lasers and modern light detectors, often with the human eye serving as a single-photon detector. The book comprises 19 chapters, 10 of which describe modern quantum photonics results, including single-photon sources, direct measurement of the photon's spatial wave function, nonlinear interactions and non-classical light, nanophotonics for room-temperature single-photon sources, time-multiplexed methods for optical quantum information processing, the role of photon statistics in visual perception, light-by-light coherent control using metamaterials, nonlinear nanoplasmonics, nonlinear polarization optics, and ultrafast nonlinear optics in the mid-infrared.

**Advances in Manufacturing, Production Management and Process**

**Control** - Beata Mrugalska 2020-06-30

This book discusses the latest advances in the broadly defined field of advanced manufacturing and process control. It reports on cutting-edge strategies for sustainable production and product life cycle management, and on a variety of people-centered issues in the design, operation and management of manufacturing systems and processes. Further, it presents digital modeling systems and additive manufacturing technologies, including advanced applications for different purposes, and discusses in detail the implementation of and challenges imposed by 3D

printing technologies. Based on three AHFE 2020 Conferences (the AHFE 2020 Virtual Conference on Human Aspects of Advanced Manufacturing, the AHFE 2020 Virtual Conference on Advanced Production Management and Process Control and the AHFE 2020 Virtual Conference on Additive Manufacturing, Modeling Systems and 3D Prototyping, the book merges ergonomics research, design applications, and up-to-date analyses of various engineering processes. It brings together experimental studies, theoretical methods and best practices, highlights future trends and suggests directions for further technological developments and the improved integration of technologies and humans in the manufacturing industry.

*Scientific and Technical Revolution: Yesterday, Today and Tomorrow*  
Elena G. Popkova 2020-06-05

This book presents a system view of the digital scientific and technological revolution, including its genesis and prerequisites, current trends, as well as current and potential issues and future prospects. It gathers selected research papers presented at the 12th International Scientific and Practical Conference, organized by the Institute of Scientific Communications. The conference "Artificial Intelligence: Anthropogenic Nature vs. Social Origin" took place on December 5-7, 2019 in Krasnoyarsk, Russia. The book is intended for academic researchers and independent experts studying the social and human aspects of the Fourth Industrial Revolution and the associated transition to the digital economy and Industry 4.0, as well as the creators of the legal framework for this process and its participants - entrepreneurs, managers, employees and consumers. It covers a variety of topics, including "intelligent" technologies and artificial intelligence, the digital economy, the social environment of the Fourth Industrial Revolution and its consequences for humans, the regulatory framework of the Fourth Industrial Revolution, and the "green" consequences, prospects and financing of the Fourth Industrial Revolution.

*The Russian Way of War* Department of Department of the Army  
2019-07-17

PRINTED IN COLOR - The Russian Way of War - Force Structure,

Tactics, and Modernization of the Russian Ground Forces Published by the U.S. Army Training and Doctrine Command G2's Foreign Military Studies Office in 2016, this book picks up where the FM 100-2 series left off and discusses Russian military structure, capabilities, and future development. Includes July 2019 BONUS materials on the following:  
\*1K17 Szhatie (1K17 Сжатие) Russian "Stiletto" Laser Tank \*Combat Laser System (Peresvet) Russian Laser Cannon \*T-14 Armata Main Battle Tank \*T-15 Heavy Infantry Combat Vehicle \*Kurganets-25 Light Tracked Armored Vehicle \*2S35 Koalitsiya-SV 152-mm Self-Propelled Howitzer \*VPK-7829 Bumerang Modular Infantry Wheeled Fighting Vehicle  
Why buy a book you can download for free? We print the paperback book so you don't have to. First you gotta find a good clean (legible) copy and make sure it's the latest version (not always easy). Some documents found on the web are missing some pages or the image quality is so poor, they are difficult to read. If you find a good copy, you could print it using a network printer you share with 100 other people (typically its either out of paper or toner). If it's just a 10-page document, no problem, but if it's 250-pages, you will need to punch 3 holes in all those pages and put it in a 3-ring binder. Takes at least an hour. It's much more cost-effective to just order the bound paperback from Amazon.com This book includes original commentary which is copyright material. Note that government documents are in the public domain. We print these paperbacks as a service so you don't have to. The books are compact, tightly-bound paperback, full-size (8 1/2 by 11 inches), with large text and glossy covers. 4th Watch Publishing Co. is a SDVOSB. <https://usgovpub.com>

**Physics of Electric Propulsion** - Robert G. Jahn 2012-12-19

Geared toward advanced undergraduates and graduate students, this text develops the concepts of electrical acceleration of gases for propulsion, from primary physical principles to realistic space thruster designs. 1968 edition.

**Fundamentals of Power Electronics** - Robert W. Erickson 2020

Fundamentals of Power Electronics, Third Edition, is an up-to-date and authoritative text and reference book on power electronics. This new edition retains the original objective and philosophy of focusing on the

fundamental principles, models, and technical requirements needed for designing practical power electronic systems while adding a wealth of new material. Improved features of this new edition include: new material on switching loss mechanisms and their modeling; wide bandgap semiconductor devices; a more rigorous treatment of averaging; explanation of the Nyquist stability criterion; incorporation of the Tan and Middlebrook model for current programmed control; a new chapter on digital control of switching converters; major new chapters on advanced techniques of design-oriented analysis including feedback and extra-element theorems; average current control; new material on input filter design; new treatment of averaged switch modeling, simulation, and indirect power; and sampling effects in DCM, CPM, and digital control. Fundamentals of Power Electronics, Third Edition, is intended for use in introductory power electronics courses and related fields for both senior undergraduates and first-year graduate students interested in converter circuits and electronics, control systems, and magnetic and power systems. It will also be an invaluable reference for professionals working in power electronics, power conversion, and analog and digital electronics. Includes an increased number of end of chapter problems; Updated and reorganized, including three completely new chapters; Includes key principles and a rigorous treatment of topics.

**Smart Technologies and Innovations in Design for Control of Technological Processes and Objects: Economy and Production** - Denis B. Solovev 2020-08-14

This book features selected papers presented at The International Science and Technology Conference "FarEastCon", which took place on October 2-4, 2018 in Vladivostok, Russian Federation. The conference represents an informational platform for accumulating expert opinion on projects and initiatives aimed at the implementation of farsighted scientific research and development; it also allows scientific and practical achievements to be shared with a wide circle of researchers. Sections of the conference are of interest for the broad range of experts involved in developing innovative solutions and organizing events that increase the efficiency of economic and innovative activities.

Handbook of Electric Motors - Hamid A. Toliyat 2018-10-03

Presenting current issues in electric motor design, installation, application, and performance, this second edition serves as the most authoritative and reliable guide to electric motor utilization and assessment in the commercial and industrial sectors. Covering topics ranging from motor energy and efficiency to computer-aided design and equipment selection, this reference assists professionals in all aspects of electric motor maintenance, repair, and optimization. It has been expanded by more than 40 percent to explore the most influential technologies in the field including electronic controls, superconducting generators, recent analytical tools, new computing capabilities, and special purpose motors.

**Memristor Networks** - Andrew Adamatzky 2013-12-18

Using memristors one can achieve circuit functionalities that are not possible to establish with resistors, capacitors and inductors, therefore the memristor is of great pragmatic usefulness. Potential unique applications of memristors are in spintronic devices, ultra-dense information storage, neuromorphic circuits and programmable electronics. Memristor Networks focuses on the design, fabrication, modelling of and implementation of computation in spatially extended discrete media with many memristors. Top experts in computer science, mathematics, electronics, physics and computer engineering present foundations of the memristor theory and applications, demonstrate how to design neuromorphic network architectures based on memristor assembles, analyse varieties of the dynamic behaviour of memristive networks and show how to realise computing devices from memristors. All aspects of memristor networks are presented in detail, in a fully accessible style. An indispensable source of information and an inspiring reference text, Memristor Networks is an invaluable resource for future generations of computer scientists, mathematicians, physicists and engineers.

Analysis of Images, Social Networks and Texts - Wil M.P. van der Aalst 2017-12-20

This book constitutes the proceedings of the 6th International

Conference on Analysis of Images, Social Networks and Texts, AIST 2017, held in Moscow, Russia, in July 2017. The 29 full papers and 8 short papers were carefully reviewed and selected from 127 submissions. The papers are organized in topical sections on natural language processing; general topics of data analysis; analysis of images and video; optimization problems on graphs and network structures; analysis of dynamic behavior through event data; social network analysis.

**Semiconductor Nanolasers** - Qing Gu 2017-02-16

A unique and comprehensive resource covering the fundamentals of nanolasers, with details of design, fabrication, and applications.

**International Youth Conference on Electronics, Telecommunications and Information Technologies** - Elena Velichko 2022-01-12

This book presents peer-reviewed and selected papers of the International Youth Conference on Electronics, Telecommunications, and Information Technologies (YETI-2021), held in Peter the Great St. Petersburg Polytechnic University, St. Petersburg, on April 22-23, 2021. For the third time around, the conference brings together students and early career scientists, serving to disseminate the current trends and advances in electronics, telecommunications, optical, and information technologies. A series of workshops and poster sessions focusing, in particular, on the theoretical and practical challenges in nanotechnologies, photonics, signal processing, and telecommunications allow to establish contacts between potential partners, share new ideas, and start new collaborations. The conference is held in an online format, thus considerably expanding its geographical reach and offering an even wider scope of discussion.

*Brain and Human Body Modeling* - Sergey Makarov 2019-01-01

This open access book describes modern applications of computational human modeling with specific emphasis in the areas of neurology and neuroelectromagnetics, depression and cancer treatments, radio-frequency studies and wireless communications. Special consideration is also given to the use of human modeling to the computational assessment of relevant regulatory and safety requirements. Readers

working on applications that may expose human subjects to electromagnetic radiation will benefit from this book's coverage of the latest developments in computational modelling and human phantom development to assess a given technology's safety and efficacy in a timely manner. Describes construction and application of computational human models including anatomically detailed and subject specific models; Explains new practices in computational human modeling for neuroelectromagnetics, electromagnetic safety, and exposure evaluations; Includes a survey of modern applications for which computational human models are critical; Describes cellular-level interactions between the human body and electromagnetic fields.

*Electrical and Electronic Principles and Technology* John Bird  
2017-03-31

This practical resource introduces electrical and electronic principles and technology covering theory through detailed examples, enabling students to develop a sound understanding of the knowledge required by technicians in fields such as electrical engineering, electronics and telecommunications. No previous background in engineering is assumed, making this an ideal text for vocational courses at Levels 2 and 3, foundation degrees and introductory courses for undergraduates.

**Microwave Imaging** - Matteo Pastorino 2010-04-27

An introduction to the most relevant theoretical and algorithmic aspects of modern microwave imaging approaches Microwave imaging—a technique used in sensing a given scene by means of interrogating

microwaves—has recently proven its usefulness in providing excellent diagnostic capabilities in several areas, including civil and industrial engineering, nondestructive testing and evaluation, geophysical prospecting, and biomedical engineering. Microwave Imaging offers comprehensive descriptions of the most important techniques so far proposed for short-range microwave imaging—including reconstruction procedures and imaging systems and apparatus—enabling the reader to use microwaves for diagnostic purposes in a wide range of applications. This hands-on resource features: A review of the electromagnetic inverse scattering problem formulation, written from an engineering perspective and with notations The most effective reconstruction techniques based on diffracted waves, including time- and frequency-domain methods, as well as deterministic and stochastic space-domain procedures Currently proposed imaging apparatus, aimed at fast and accurate measurements of the scattered field data Insight on near field probes, microwave axial tomographs, and microwave cameras and scanners A discussion of practical applications with detailed descriptions and discussions of several specific examples (e.g., materials evaluation, crack detection, inspection of civil and industrial structures, subsurface detection, and medical applications) A look at emerging techniques and future trends Microwave Imaging is a practical resource for engineers, scientists, researchers, and professors in the fields of civil and industrial engineering, nondestructive testing and evaluation, geophysical prospecting, and biomedical engineering.